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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,872	12/13/2004	Catherine Julia Piper	PPD 70048	1343
26748 7590 01/24/2008 SYNGENTA CROP PROTECTION, INC. PATENT AND TRADEMARK DEPARTMENT 410 SWING ROAD GREENSBORO, NC 27409			EXAMINER CHUI, MEI PING	
			ART UNIT 1616	PAPER NUMBER
			MAIL DATE 01/24/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/517,872

Applicant(s)

PIPER ET AL.

Examiner

Helen Mei-Ping Chui

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/ are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/13/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Status of Action

The Examiner acknowledges receipt of application number 10/517,872 filed on 12/13/2004. Claims 1-12 are presented for examination on the merits for patentability.

Claim Rejection - 35 U.S.C. § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Scher et al. (U. S. Patent No. 5,912,207).

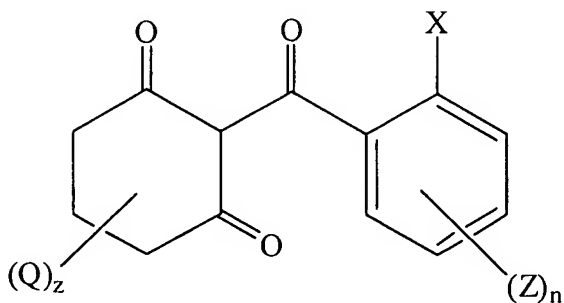
It is noted that the substituent of the herbicidal metal chelate formula (I) disclose in Scher et al. corresponds to the substituent in the instant claims as follows:

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<u>Substituent (Scher et al.)</u>	<u>Substituent (instant claims)</u>
R^2	R^5
R^7	R^6
R^8	R^7
(C ₁ -C ₄) alkyl	R^8
R^{15}	R^1
R^{16}	R^2
R^{17}	R^3
R^{18}	R^4
R^a	R^9

With respect to claim 1, Scher et al. disclose a herbicidal formulation comprising a metal chelate herbicide and a phosphate that provide the source of the metal ion (column 1, line 3-5 and column 7, line 57).

Scher et al. disclose that the structure of the herbicidal metal chelate dione compound, specifically preferred 2-(substituted benzoyl)-1,3-cyclohexanedione of formula (II), as below:



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wherein X: represents a halogen atom; a straight- or branched-chain alkyl or alkoxyl group containing up to six carbon atoms which is optionally substituted by one or more groups $-OR^{15}$ or one or more halogen atoms; or a group selected from nitro, cyano, $-CO_2R^{16}$, $-S(O)_mR^{15}$, $-O(CH_2)_rOR^{15}$, $-COR^{16}$, $-NR^{16}R^{17}$, $-SO_2NR^{16}R^{17}$, $-CONR^{16}R^{17}$, $-CSNR^{16}R^{17}$ and $-OSO_2R^{18}$ (for X: see column 4, line 21-28; for R^{15} - R^{18} : see column 4, line 28-38);

Z: each independently represents halo, nitro, cyano, $S(O)_mR^{16}$, $OS(O)_mR^{16}$, (C_1-C_6) alkyl, (C_1-C_6) alkoxyl, (C_1-C_6) haloalkyl, (C_1-C_6) haloalkoxyl, carboxyl, (C_1-C_6) alkylcarbonyloxy, (C_1-C_6) alkoxycarbonyl, (C_1-C_6) alkylcarbonyl, amino, (C_1-C_6) alkylamino, (C_1-C_6) dialkylamino having independently the stated number of carbon atoms in each alkyl group, (C_1-C_6) alkylcarbonylamino, (C_1-C_6) alkoxycarbonylamino, (C_1-C_6) alkylaminocarbonylamino, (C_1-C_6) dialkylaminocarbonylamino having independently the stated number of carbon atoms in each alkyl group, (C_1-C_6) alkoxycarbonyloxy, and the remaining substituents as recited therein (for Z: see column 4, line 39-54; for R^7 : see column 4, line 7-8, and for R^8 : see column 4, line 9-14); and R^2 represents cyano, $-COR^7$, $-CO_2R^7$ or $-S(O)_mR^8$ (column 3, line 25);

Q: each independently, represents C_1-C_4 alkyl or $-CO_2R^a$ wherein R^a is (C_1-C_4) alkyl (column 5, line 28-30 and column 5, line 29-30);

z: is 0 or an integer from 1 to 6 (column 5, line 30);

m: is 0, 1 or 2 (column 2, line 55);

n: is 0 or an integer from 1 to 4 (column 2, line 56);

r: is 1, 2 or 3 (column 2, line 59).

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Scher et al. also disclose that salt, i.e. phosphates, is particularly suitable as a source to provide a divalent or trivalent metal ion for forming the metal chelating with 2-(substituted benzoyl)-1,3-cyclohexanedione compound (column 7, line 53-57). Therefore, claim 1 is anticipated.

With respect to claim 2, Scher et al. also disclose that the preferred 2-(substituted benzoyl)-1,3-cyclohexanedione compound of formula (II) comprises substituents, where X is chloro, bromo, nitro, cyano, C₁-C₄ alkyl, -CF₃, -S(O)_mR¹⁵ or -OR¹⁵ (column 6, line 12-13). Therefore, instant claim 2 is anticipated.

With respect to claim 3, Scher et al. further disclose that Z is independently chloro, bromo, nitro, cyano, (C₁-C₄) alkyl, -CF₃, -OR¹⁵, -OS(O)_mR² or S(O)_mR² for the preferred 2-(substituted benzoyl)-1,3-cyclohexanedione compound of formula (II) (column 6, line 14-16). Therefore, instant claim 3 is anticipated.

With respect to claims 4 and 5, Scher et al. disclose that n is 1 or 2, and z is 0 for the preferred 2-(substituted benzoyl)-1,3-cyclohexanedione compound of formula (II) (column 6, line 12 and 14). Therefore, instant claims 4 and 5 are anticipated.

With respect to claim 6, Scher et al. disclose that the preferred cyclohexanedione compounds are 2-(2'-nitro-4'-methylsulphonylbenzoyl)-1, 3-cyclohexanedione, 2-(2'-nitro-4'-methylsulphonyloxybenzoyl)-1, 3-cyclohexanedione and 2-(2'-chloro-4'-methylsulphonyl benzoyl)-1,3-cyclohexanedione (column 6, line 16-20). Therefore, instant claim 6 is anticipated.

With respect to claim 11, Scher et al. disclose that the formulation, which containing the metal chelate herbicidal cyclohexanedione compound of formula (I), can be applied directly to

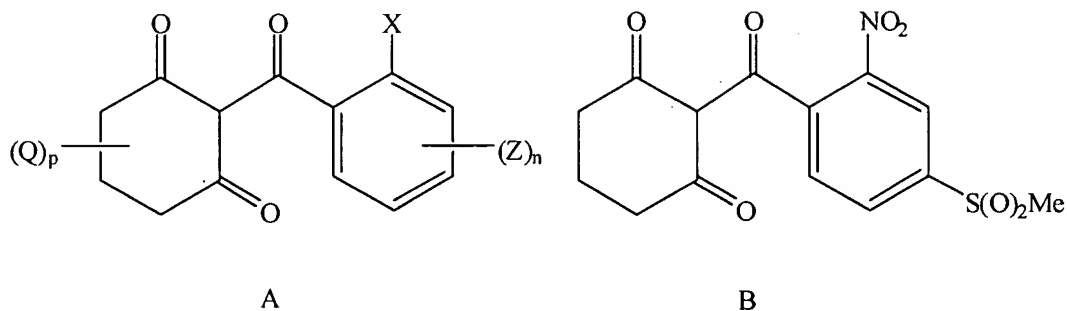
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an area where control of undesired vegetation is located (column 8, line 28-31). Therefore, instant claim 11 is anticipated.

Claims 1-8, 11 and 12 are rejected under 35 U.S.C. 102(a) and 102(e) as being anticipated by Pallett et al. (WO 02/21919).

With respect to claims 1-8, Pallett et al. disclose a herbicidal composition comprising 2-(2'-nitro-4'-methylsulfonylbenzoyl)-1,3-cyclohexanedione or its metal complex (page 6, line 5) and an adjuvant, i.e. phosphates (page 3, line 12).

Pallett et al. also disclose the structure of 2-(2'-nitro-4'-methylsulfonylbenzoyl)-1,3-cyclohexanedione (below as **B**), which anticipates the structure of instantly claimed metal chelate of 2-(substituted benzoyl)-1,3-cyclohexanedione of formula (I) (below as **A**) in a manner that $X = \text{NO}_2$; $Z = -\text{S}(\text{O})_2\text{Me}$; $p = 0$ and $n = 1$.



Pallett et al. also disclose an exemplify example of herbicidal suspension comprising 2-(2'-nitro-4'-methylsulfonylbenzoyl)-1,3-cyclohexanedione and ethoxylated tristeryl phenol phosphate, wherein the phosphate contains 3 alkoxyl groups, as an adjuvant (page 8, line 18 and Example C1). Therefore, instant claims 1-8 are anticipated.

With respect to claim 11 and 12, Pallett et al. disclose a method for controlling the growth of weeds in crops-growing areas by applying to the locus of weeds an effective amount of herbicidal composition which comprises 2-(2'-nitro-4'-methylsulfonylbenzoyl)-1,3-cyclohexanedione or its metal complex, and additionally, a suitable adjuvant, i.e. phosphates (page 1, line 12-14 and page 4, line 1-2 and compound formula (II)). Pallett et al. also disclose that the herbicidal composition can be used to control selectively the growth of weeds to a locus of weed infestation which is an area used for growing crops (page 3, line 24-28). Therefore, instant claims 11 and 12 are anticipated.

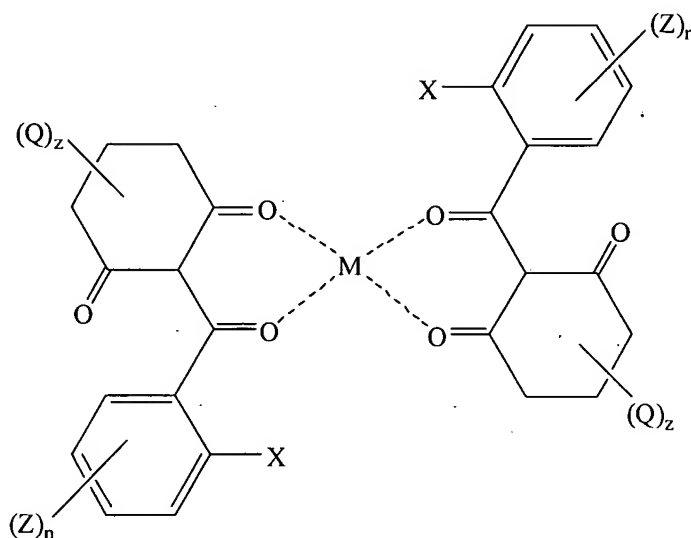
Claims 1, 11 and 12 are rejected under 35 U.S.C. 102(a) as being anticipated by Scher et al. (WO 01/95722).

Scher et al. disclose a method of selectively controlling undesirable vegetation in crops by using a herbicidal effective amount of a metal chelate of a 2-(substituted benzoyl)-1,3-cyclohexanedione compound to the locus of the undesirable weeds and other vegetation (Abstract: line 1-3 and page 2, line 16).

With respect to claim 1, Scher et al. disclose that the method comprises the post-emergent application of said herbicidal 2-(substituted benzoyl)-1,3-cyclohexanedione metal

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chelate compound having the general structure as below Page 5), wherein appropriate salt, i.e. phosphates, present in the composition is particularly suitable as a source to provide a divalent or trivalent metal ion for forming the 2-(substituted benzoyl)-1,3-cyclohexanedione metal chelate complex (page 5, line 10 and page 6, line 5-8).



Scher et al. also disclose that the metal chelate 2-(substituted benzoyl)-1,3-cyclohexanedione of formula (I) has substituent $X = \text{CN}$, $Z = \text{a halogen atom}$, $Q = \text{C}_1\text{-C}_4 \text{ alkyl}$, $m = 0 \text{ to } 2$; $n = 0 \text{ to } 4$; $r = 1 \text{ to } 3$; $z = 0 \text{ to } 6$, and other substituents as recited therein (page 3, line 1-26 and page 4, line 1-20). Therefore, instant claim 1 is anticipated.

With respect to claims 11 and 12, Scher et al. disclose that the herbicidal metal chelate composition is applied to the locus where control of weeds is desired (page 6, line 29-31 and page 7, Example 1). Scher et al. also disclose that the metal chelate formulation, i.e. copper ion chelation, of 2-(substituted benzoyl)-1,3-cyclohexanedione showed improved selectivity for controlling undesired vegetation over the unchelated formulation when applying in crops, i.e.

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wheat (page 15, Example 3 and page 19, claim 9). Therefore, instant claims 11 and 12 are anticipated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 7, 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scher et al. (U. S. Patent No. 5,912,207) in view of Kleiner et al. (WO 98/00021).

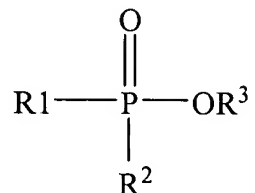
Applicant Claims

Applicants claim a herbicidal composition comprising a metal chelate of 2-(substituted benzoyl)-1,3-cyclohexanedione of formula (I), as recited therein, and an adjuvant, i.e. phosphate, phosphonate or phosphinate.

Determination of the scope and content of the prior art (MPEP 2141.01)

The teaching of Scher et al. has been set forth above. Essentially, Scher et al. teach a metal chelate of 2-(substituted benzoyl)-1,3-cyclohexanedione of formula (I), which is formed by adding the desired metal ion to 2-(substituted benzoyl)-1,3-cyclohexanedione of formula (I) (column 6, line 1-4). Scher et al. also teach that appropriate salt that can provide a source of divalent or trivalent metal ion, i.e. phosphates, can be included in the composition. (column 7, line 53-57).

Kleiner et al. teach a fungicidal composition comprising a phosphonate or a phosphinate of formula (I) as below:



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Kleiner et al. teach that the formula (I) can be a phosphonate when R^1 is an alkoxy group; R^2 and R^3 are both alkyl groups that containing 6-20 carbon atoms (page 1, line 18-26 and structures). Kleiner et al. also teach that the formula (I) can be a phosphinate when R^1 , R^2 and R^3 are all alkyl groups that containing 6-20 carbon atoms. Alternatively, R^1 is a substituted phenyl group, R^2 and R^3 are both alkyl groups that containing 6-20 carbon atoms (page 1, line 21-26).

Kleiner et al. also teach that phosphonates and phosphinates have herbicidal activity and are capable to enhance the activity of certain herbicides (page 1, line 5-7).

Ascertainment of the difference between the prior art and the claims
(MPEP 2141.02)

Scher et al. do not teach phosphonate or phosphinate as an adjuvant in combination with a metal chelate of 2-(substituted benzoyl)-1,3-cyclohexanedione of formula (I).

Finding of prima facie obviousness Rational and Motivation
(MPEP 2142-2143)

It would have been obvious to a person of ordinary skilled in the art at the time the invention was made to combine the teachings of Scher et al. and Kleiner et al. and utilize phosphate or its derivatives, i.e. phosphonate or phosphinate, as an adjuvant in combination with a metal chelate of 2-(substituted benzoyl)-1,3-cyclohexanedione compound to obtain the instantly claimed herbicidal composition.

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One of ordinary skill would have been motivated to use phosphate derivatives, i.e. phosphonate or phosphinate, into the herbicidal composition, and reasonably expected a success a similar result as an adjuvant. At the same time, the addition of phosphonate or phosphinate would enhance the herbicidal activity of 2-(substituted benzoyl)-1,3-cyclohexanedione metal chelate compound, as suggest by Kleiner et al.

Therefore, the claimed invention, as a whole, would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made, because the combined teachings of the prior art fairly suggests the instant claims.

Conclusion

No claims are allowed.

Contact Information

Any inquiry concerning this communication from the Examiner should direct to Helen Mei-Ping Chui whose telephone number is 571-272-9078. The examiner can normally be reached on Monday-Friday (7:30 am – 5:00 pm). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where the application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either PRIVATE PAIR or PUBLIC PAIR. Status information for unpublished applications is available through PRIVATE PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the PRIVATE PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sharmila Gollamudi Landau

Primary Examiner

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